Shang-Ru Yao

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Education

Master of Science in Electrical and Computer Engineering   **The Ohio State University, Columbus, OH, USA**   *Aug. 2022-Present*
- Focused on computer engineering including knowledges of embedded software development, operating system, and project management

Master of Science in Mechanical Engineering   **Chang Gung University, Taoyuan City, Taiwan**   *Sep. 2018-Jun. 2020*
- Focused on computational fluid dynamics and numerical analysis in the analysis of energy saving and pollutant reduction

Work Experiences

Software Developer (Research Student Assistant), The Ohio State University | Python, QT creator   *Nov. 2022-Present*
- Integrated a motor control system by combining various drivers, resulting in a seamless configuration of multiple motors for experimental purpose
- Implemented driver control by utilizing Python APIs such as PySerial, effectively unifying multiple programs for various drivers into a single, universal program
- Developed a user-friendly GUI interface using QT Creator, eliminating the need for multiple driver control GUI interfaces and enabling seamless experimentation for users

Thermal Engineer, AcBel Polytech, Inc., Taipei, Taiwan **| Ansys Fluent, Ansys Icepack, FloTherm**   *Jun. 2021-Aug. 2021*
- Designed the cooling method to decrease the inner heat accumulation by 10% for the new product launch
- Provided thermal/cooling technical analysis as the preliminary reference for electronic engineers to design the charger or the adaptor
- Tested out the power supply cooling unit to understand the product specification and meet the compliance requirement of the products

Projects

Follow-Me-Carrier | Java, C++, Android development, Arduino programming
- Designed a follow-me-carrier with a Bluetooth module (HC_05) and gyroscope integration in the mobile device to allow for automatic following of the user, which achieved the objective of hands-free operation and cost savings by eliminating the need for additional sensors in the carrier.
- Implemented distance calculation between the user and the carrier by the Bluetooth GATT API in the mobile device, which allowed the following mode without the deployment of a camera in the carrier.
- Conducting the communication between the mobile device and the Arduino via the Bluetooth APIs in Android platform to make any user control the carrier without any extra portable device

Android APP development | Java, Android development
- Developed GUI interface for Android mobile devices, enabling users to assess three key sensors - accelerometer, gyroscope, and proximity, to demonstrate the functionality and mechanism of these sensors in mobile devices
- Implemented Bluetooth connectivity using Bluetooth APIs, facilitating seamless data transfer between two mobile devices, to carry out efficient communication and streamlined data exchange between devices
- Facilitated seamless communication between the mobile device and Arduino via Bluetooth APIs on the Android platform to empower any user to control the carrier without the need for any extra portable device.

Design of the machine instruction | Simulator
- Designed the register transfers to implement a set of instructions as well as the complete control unit specifications for a complete instruction set given the hardware paths
- Designed the machine instructions to test the functions of the designed complete control unit and arithmetic logic unit

Website Development | HTML, CSS, PHP, JavaScript
- Configured the website environment using the XAMPP package on the Windows operating system, facilitating rapid website setup and functional verification
- Developed a communication and messaging platform for students to enable them to connect and leave messages regardless of their location, which established a thriving community
- Launched the website to the public by applying for the domain name and configuring it to point to the local internet, which significantly enhanced online visibility

Publications

- Dilution Effects Analysis on NO_x Emissions of Opposed-Jet H_2/CO Syngas Diffusion Flames, *International Journal of Hydrogen Energy*, Apr. 2022. (First author)